STATE OF ALASKA

William A. Egan, Governor

Annual Progress Report for

LIFE HISTORY INVESTIGATIONS OF NORTHERN PIKE IN THE TANANA RIVER DRAINAGE

by

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RESEARCH PROJECT SEGMENT

State: Alaska

Project No.: F-9-3 *Name:* Sport Fish Investigations of Alaska.

Study No.: R-III *Study Title:* Life History Investigations of Northern Pike in the Tanana River Drainage.

Period Covered: July 1, 1970 to June 30, 1971.

ABSTRACT

During 1970, 378 northern pike, Esox lucius Linnaeus, were tagged in the Minto Flats. Thirty-six were recaptured.

Test netting showed pike are more abundant in the northwestern and southeastern sections of Minto Flats.

Creel census data showed a decrease in fishing effort and catch in 1970 compared to 1969. Subsistence fishermen took approximately 800 pike.

Some pike spawning grounds were located and their charactersitics assessed. Spawning occurred from approximately May 10 to June 15.

Age and growth studies utilizing scales and vertebrae from pike were begun. Aging by vertebrae appears to be more accurate than the scale method.

Water temperatures and chemistry were monitored during the summer in Minto Flats.

Food habit studies showed that fish were the most important food item, followed by invertebrates.

RECOMMENDATIONS

1. A statistically based creel census should be continued and arranged so the entire Minto Flats can be censused. The subsistence fishery should be intensely monitored.

2. The tagging program should be continued to further define winter and summer movements.

3. Major spawning areas should be located, delimited, and assessed. Fecundity studies should be initiated.

4. Attempts should be made to estimate pike populations in various areas of Minto Flats.

5. Food habits studies should be continued.

6. Surveys of other pike waters throughout the Tanana River drainage should be initiated.

TECHNIQUES USED

Northern pike were captured using graduated mesh gill nets, four- and five-inch stretched mesh gill nets, fyke nets, beach seines, and sport angling gear. All fish taken alive were weighed, measured, and tagged. Pike movements were determined by tagging and recovery. Floy yellow plastic dart tags were used and recaptures were made by Department personnel and subsistence and sport fishermen.

Creel census information was collected by interviewing anglers. Aerial boat counts were made and correlated with ground counts. Subsistence fishery estimates were made by interviewing fishermen and counting nets and fish.

Spawning grounds were located by foot and boat.

Scales, sections of dorsal fin rays, and the first four to eight vertebrae were taken for age determination. Pike were aged using scales and vertebrae. Scales were mounted between glass slides and read with a microprojector. Vertebrae were cleaned, dried, separated, placed in a clearing agent, and read with a binocular microscope.

Water temperatures were taken with hand and electric thermometers. Water chemistry was determined with a Hach Model AC-36-WR test kit. Some water samples were also analyzed by the Federal Water Pollution Control Administration, Alaska Water Laboratory.

Job R-III-B Pike Utilization in the Tanana River Drainage.

Objectives

1. To collect information on fishing effort and catch and follow trends in size of sport-caught pike.
2. To collect pike subsistence data for the Minto Flats.

Creel Census

Creel census was conducted daily between May 23 and August 23, 1970. Four hundred eleven anglers were contacted. Counts of parties seen but not interviewed were made. Nearly all boat fishing parties in the western half of Minto Flats were accounted for. Approximately 10% of the anglers in this area used aircraft for transportation and it was often difficult to contact these anglers. The eastern half of Minto Flats is accessible only through the western half via the Chatanika River or by plane. This area was not censused intensively. One fishing camp operated all summer at the "Caches" approximately five miles upstream from the mouth of Goldstream Creek. The guide provided creel census data for his operation.

The Minto Lake area has an excellent fly-in pike fishery. However, because of its remoteness from the principal study area, no data on these fly-in fishermen was obtained.

Counts of interviewed and non-interviewed parties showed that approximately 72% of the anglers in the Flats between May 23 and August 23 were contacted (excluding plane fishermen in Minto Lake). Creel census data was expanded to 100% (Table 3).

TABLE 3 Minto Flats Creel Census, Expanded Counts, 1970.

	May	June	July	August	"Cache" Census	Totals
No. parties	8	47	60	26	-	141
No. anglers	45	197	201	73	51	567
No. angler hrs.	619	209	709	161	435	2,133
Hrs. fished/angler	13.8	1.1	3.5	2.2	-	3.8
No. pike caught	233	385	136	61	143	958
No. pike caught over 30"	1	35	14	5	17	72

TABLE 3 (Cont.) Minto Flats Creel Census, Expanded Counts, 1970.

	May	June	July	August	"Cache" Census	Totals
No. pike retained	156	223	55	41	129	604
% pike retained	67.0	57.9	40.4	67.2	90.2	63.0
Fish/angler	5.2	2.0	0.7	0.8	2.8	1.7
Fish/hr.	0.4	1.8	0.2	0.4	0.3	0.5
% local residents	50.0	28.1	47.3	72.7	0.0	49.5
% military	50.0	71.9	47.3	27.3	0.0	49.1
% tourists	0.0	0.0	5.4	0.0	100.0	1.4

Comparison of 1970 creel census data with that of 1969 shows a marked decrease in fishing effort and catch in 1970. In 1969, an estimated 430 anglers fished 3,198 hours and caught 6,199 pike. In 1970, 567 anglers fished 2,133 hours and caught 958 pike. Anglers caught 1.9 pike per hour in 1969, but only 0.5 in 1970.

A probable reason for this decrease in catch is due to differences in water levels. In 1969, water levels were lower. Fish were concentrated in deep holes at the confluences of rivers and sloughs and were easily taken. Throughout summer, 1970, high water provided vastly expanded habitable areas for pike. Also in 1970, high water and inclement weather greatly discouraged angling.

A road completed in August, 1970, now connects the village of New Minto with Fairbanks, 140 miles away. This road will permit increased use of the Minto Flats recreational resources. Several residents of New Minto are interested in providing services such as stores, restaurants, boat docks, and guiding services. None exist at this time, however.

Subsistence Fishery

Historically, the native people of the Minto Flats region have conducted a subsistence fishery for the abundant pike; whitefish, Coregonus sp.; sheefish, Stenodus leucichthys nelma; and salmon, Oncorhynchus sp. Prior to resettlement of Minto to a location in the northwestern side of the Flats in 1970, most fishing was confined to the Minto Lakes area and the Tanana River. A whitefish trap, operated on the Chatanika River where it enters Minto Flats, is no longer in existence.

Minto residents have stated that it was their custom to take about 2,000 pike from Minto Lake each year at freezeup. This catch was not made during the fall, 1970.

New Minto has a population of approximately 200 people, many of whom depend on the resources of the area.

Estimates of the 1970 subsistence catch for the Minto Flats are as follows:

Pike	- approximately 800 fish
Whitefish*	- approximately 270 fish
Sheefish	- approximately 75 fish

*Mainly broad whitefish, C. nasus, but also some humpback whitefish, C. pidschian.

This estimate is based on intermittent observations from May 25 to September 15. Nets were counted and catches enumerated when possible or estimated when not.

Nets were fished and tended very irregularly making accurate estimations difficult. A maximum of 10 nets were observed fishing at one time but the average was approximately five. The nets ranged from 10 - 20 feet in length with depths up to six feet. Mesh sizes varied from 4.5 - 5.5 inches (stretched mesh).

Because of the irregular patterns of this fishery, an extensive monitoring effort would be necessary to obtain detailed catch estimates.

In 1970, most subsistence fishing occurred in the vicinity of New Minto. The majority of pike were used as dog food, although some were used for human food. All whitefish and sheefish were used for human consumption.

It appears that subsistence fishing for pike in Minto Flats may decrease as fewer dogs are being kept. With road access now available, there will be less dependence upon the resources. However, whitefish and sheefish are highly prized as food fish. It is expected that fishing for these species will be continued.